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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/079,027	02/19/2002	Gennady Ruderman	V0077/7223	6406
7590 Gary L. Loser, Esq. Vice President and General Counsel Varian Semiconductor Equipment Associates, Inc. 35 Dory Road Gloucester, MA 01930			EXAMINER PATEL, VISHAL A	
			ART UNIT 3676	PAPER NUMBER
			MAIL DATE 12/06/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/079,027	Applicant(s) RUDERMAN, GENNADY	
	Examiner Vishal Patel	Art Unit 3676	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 31 October 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7,9-32 and 35 is/are pending in the application.
- 4a) Of the above claim(s) 35 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/31/07 has been entered.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 23-26 and 17-32 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 23, "the sealing member", this limitation is not defined in claim 1.

Claim 27, "floating shaft seal", unclear how a floating shaft seal can have a reciprocating and rotating shaft?

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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5. Claims 1-7 and 9-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Hubler (US No. 3,666,276).

Hubler discloses a sealing device comprising a shaft seal (fig. 2) having a sealing portion (4a disposed on the shaft to prevent flow between 4a and the shaft 1a due to O-rings that are disposed on an outer surface of the shaft and contact with the member 4a) disposed on the shaft to prevent movement of fluid between the shaft seal and the shaft (5a is a coating formed of material having low coefficient of friction and disposed on the shaft and provides a labyrinth seal between the shaft and the sealing portion) and a support portion (FIG. 2). The sealing portion is constructed and arranged to sealingly engage with a shaft and allow the shaft to be at least one of slidingly and rotationally moved relative to the sealing portion (FIG. 2). There is a seal mount (22) having a first end (12), a second end (13) and a flexible member (6a) between the first (12) and second ends (13) that enable movement of the first end relative to the second end in at least one degree of freedom (via flexible connecting bellows portion). The first end (12) is sealingly engageable to at least a portion of the support portion (3a) of the shaft seal (5a). The second end (13) is sealingly engageable to an engagement surface (surface of 2a) about a port into a process chamber (FIG. 2).

B. The flexible member defines a transition space in a first zone P1, which is in fluid communication with the vacuum process chamber (defined by the interior of 2a). The pod comprises a central axis and the flexible member (6a) allows Movement of the shaft (1a) seal in at least two degrees of freedom relative to the central axis of the port (FIG. 2). The pod has a pod size (13) substantially larger than the shaft size (outer diameter of 1a), which extends through the port (FIG. 2). The shaft may be angularly or laterally off set with respect to a central axis of the

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seal device via its flexible bellows. The sealing portion of the shaft seal sealingly engages with a cylindrical-shaped portion of the shaft. The support portion of the shaft (1a) is substantially rigid and constructed of metal or PTFE (Col. 2, line 31). The flexible member may be rubber or an elastomer. The flexible member includes a plurality of undulations forming a bellows portion (FIG. 2). There is a first retaining ring constructed and arranged to sealingly engage a first end of the flexible member to the shaft. An o-ring is positioned between the first retaining ring and the shaft seal. There is a second retaining ring (13) constructed and arranged to sealingly engage a second end of the flexible member to an engagement surface of the process chamber (interior of 2a). There is a second o-ring positioned between the second retaining ring (13) and the engagement surface (2a). The flexible member (6a) includes a flexible collar portion connecting the bellows and 13. The device is fluidly connectable to a vacuum source (Col. 4, line 41). Hubler teaches that the shaft is extended through an opening through a chamber (chamber formed by 2a and opening through 2a). The sealing portion is disposed on the shaft and is configured to maintain a vacuum seal and to resist fluid flow between the sealing portion and the shaft (this is the case since the sealing portion 5a reduces the gap and would provide a narrow clearance that would resist fluid flow). The sealing portion disposed on the shaft to prevent movement of fluid between the shaft seal and the shaft (this is the case since the sealing portion

The fact that the seal arrangement may be used with a shaft in a vacuum environment is given very little patentable weight because this limitation is considered to be intended use limitation. The fact that the shaft maybe controlled by an external controller is considered to be intended use limitation and given very little patentable weight.

Furthermore Hubler does teach that a vacuum exists in area with pressure P1, the seal integrity is maintained and the shaft is capable of being movable by an external controller. The sealing device is capable of being configured to maintain a vacuum seal about the shaft and resist fluid flow between the sealing portion and the shaft, since pressure in P1 is not able to communicate or flow into pressure P2.

Furthermore applicant can consider that the sealing portion is 5a and 3a and disposed on the shaft to provide a labyrinth seal to prevent fluid flow between the sealing portion and the shaft (labyrinth seal is defined by a small gap between two relative rotating bodies, also see specification of application, page 6).

6. Claims 1-7, 9-18, 20-26 and 27-32 are rejected under 35 U.S.C. 102(b) as being anticipated by Guggi et al (US. 4,030,615).

Guggi discloses a sealing device for providing a seal in vacuum applications for processing systems (intended use and the sealing device is capable of being used in vacuum applications for process system), the sealing device comprising a shaft (1) that substantially extends longitudinally along an axis that is collinear with a central axis (central axis of port in member 3 of invention in figure 2 that is similarly illustrated in figure 1) of a port (the port in member 3) between a first zone (pressure zone behind wall 3) and a second zone having a pressure differential existing therebetween (pressure in zone behind wall 38) and, the shaft may be positioned at a range of angles with respect to the central axis of the port for enabling movement of a device in the second zone by an external controller in the first zone (intended use, but the shaft is capable of being positioned at a range of angles with respect to the central axis of the port for enabling movement of a device in the second zone by an external controller in the

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first zone), a shaft seal having a sealing portion (6 and 7) and a support portion (35), the sealing portion being disposed on the shaft to prevent movement of fluid between the shaft seal and the shaft (this is the case since 6 is mounted on the shaft and is contacted by 7) and being configured to maintain a vacuum seal about the shaft (intended use but the sealing device is capable of being used in a vacuum environment), the sealing portion constructed and arranged to allow the shaft to be at least one of slidingly and rotationally moved by the external controller relative to the sealing portion in two or more degrees of freedom to achieve the range of angles to the port (invention in figure 2 that moves similar to figure 1), a seal mount having a first end (5), a second end (4) and a flexible member (bellows between the first and second ends) between the first and second ends that enables movement of the first end relative to the second end in at least one degree of freedom (figures 1-2), the first end being sealingly engageable to at least a portion of the support portion of the shaft seal (intended use and the first end is capable of sealing engagement of a portion of the support portion 35) and the second end being sealingly engageable to an engagement surface about the port and being configured to maintain the vacuum seal (intended use but the second end is capable of being contacted on an engagement surface about the port, invention in figure 2 that moves similar to figure 1).

Regarding claim 2: The flexible member defines a transition space (space that is communicated by port 12) in the first zone and the transition space being in fluid communication with the port (communication done through port 12).

Regarding claim 3: The flexible member allowing movement of the shaft seal in at least two degrees of freedom relative to the central axis of the port (invention in figure 2 that moves similar to figure 1).

Regarding claim 4: The port (the port in 3) further comprises a port size (the port has a port size) and a portion (portion of the shaft 1) of the shaft (1) extending through the port has a shaft size, the port size being substantially larger than the shaft size (see figure 1 that clearly shows this limitations).

Regarding claims 5-6: The port comprises a central axis, and the shaft seal is movable to allow the shaft to be angularly offset relative to the central axis of the port (intended use but figures 2 shows that the shaft is capable of allowing the shaft to be angularly offset relative to the central axis of the port). The shaft seal is movable to allow the shaft to be laterally offset relative to the central axis of the port (invention in figure 2 that moves similar to figure 1).

Regarding claim 7: The sealing portion of the shaft seal sealingly engages with a cylindrical portion of the shaft (that is the case since 6 is mounted on a cylindrical surface of the shaft 1).

Regarding claim 9: The sealing portion sealingly engages the shaft so that the shaft may be rotationally moved but not slidingly moved, relative to the sealing portion (intended use but the sealing portion is capable of rotational movement and not sliding movement).

Regarding claim 10: The support portion includes a housing (housing showed in figure 2 having wall 35) having a shaft bore with an inner surface, the shaft bore constructed and arranged to allow the shaft to pass through the shaft bore (intended use but the shaft bore is capable of receiving the shaft).

Regarding claim 11: The support portion of the shaft seal is characterized as being substantially rigid (the support portion is rigid).

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Regarding claim 12: The shaft seal includes a portion constructed from at least one member of the group consisting of metals, powder metals, ceramics, metallo-ceramics, rigid plastics, and combinations thereof (6 or 7 are formed from one of the materials in claim 12).

Regarding claim 13: The flexible member includes at least one of natural rubber, silicone rubber, and elastomeric polymer materials (cross-section shown in figure 2 of the bellows teaches this limitation).

Regarding claim 14: The flexible member includes a plurality of undulations (figure 2 shown the bellow to have undulations)

Regarding claim 15: The flexible member includes a bellows portion (the bellows shown in figure 2).

Regarding claim 16: The sealing device comprising a first retaining ring (8) constructed and arranged to sealingly engage a first end of the flexible member to the shaft seal.

Regarding claim 17: The sealing device further comprising a first O-ring (7) positioned between the first retaining ring and the shaft seal.

Regarding claim 18: The sealing device further comprising a second retaining ring (4) constructed and arranged to sealingly engage a second end of the flexible member to the engagement surface (invention in figure 2 that moves similar to figure 1).

Regarding claim 20: The flexible member includes a flexible collar (the collar placed on 5).

Regarding claim 21: The shaft is moveable in a reciprocating manner relative to the shaft seat and the port (invention in figure 2 that moves similar to figure 1).

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Regarding claim 22: The shaft is moveable in a rotating manner relative to the shaft seal and the port (invention in figure that moves similar to figure 1).

Regarding claim 23: The sealing member comprises a first seal member (6), a second seal member (8) and a spacer member (7) positioned therebetween, each of the seal members having a first surface and a second surface, the first surface being supported by the support portion and the second surface being sealingly associated with the shaft.

Regarding claim 24: The sealing device having a differential space (this is the case since fluid from port 12 provides fluid between 8 and 6) between the first and second seal members, the differential space being fluidly connectable with a vacuum source (intended use but the sealing device is capable of being used in a vacuum environment).

Regarding claim 25: The differential space is located between the spacer seal member and the support portion (the differential space is between 35 and 7).

Regarding claim 26: The seal mount defines a transition space in the first zone, and the differential space is fluidly connectable to transition space (fluid in the first zone is communicated through to port 12 to the transition space).

Regarding claim 27: A floating shaft seal device for providing a vacuum seal for processing systems (intended use but the floating shaft seal device of Guggi is capable of being used as a vacuum seal) the floating shaft seal device comprising a reciprocating and rotating shaft (1), the shaft substantially extends longitudinally along an axis that is collinear with a central axis of a port (invention of figure 2 having a port in 3 similar as shown in figure 1) and is passed from a zone at ambient air pressure through an opening to a zone having a substantially lower pressure than ambient, the shaft may be positioned at a range of angles with respect to the

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central axis of the port by an external controller from the zone at ambient air pressure (intended use but the floating shaft seal device of Guggi is capable being used as stated), a sealing member (sealing member that is a bellows and/or 8 and/or 7 and/or 6 of figure 2) constructed and arranged to allow the shaft to move responsive to the external controller relative to at least a portion of the sealing member in two or more degrees of freedom to achieve the range of angles in the port (the invention of figure 2 that is capable of being moved as shown in figure 1), the sealing member (6) disposed on the shaft to prevent movement of fluid between the sealing member and the shaft and being configured to maintain a vacuum seal about the shaft (intended use but the invention of Guggi is capable of being used in a vacuum environment), a flexible mounting collar (8) having a first end opening and a second end opening, the first end (end near 6 having 7) opening being sealingly engageable with the sealing member, the second end opening sealingly engageable about an engagement surface (engagable with a surface of 3) about the opening and configured to maintain the vacuum seal (intended use but the floating shaft seal device is capable of being placed in a vacuum environment).

Regarding claims 28-31: The opening has a central axis, and the sealing member and the flexible mounting collar are constructed and arranged to allow the shaft to be offset relative to the central axis (intended use). The sealing member and the flexible mounting collar are constructed and arranged to allow the shaft to be rotated about an axis transverse to the central axis (intended use). The sealing member is constructed and arranged to allow the shaft to rotate relative to at least a portion of the sealing member. The sealing member is constructed and arranged to allow the shaft to slide along a longitudinal axis of the shaft relative to at least a

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portion of the sealing member (intended use, intention of figure 2 moves similar to one shown in figure 1).

Regarding claim 32: A portion (portion of 6) of the sealing member is disposed on a cylindrical portion of the shaft.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 19 is rejected under 35 U.S.C. 103(a) as being unpatentable over Guggi in view of Hubler.

Guggi discloses the invention substantially as claimed above but fails to disclose an O-ring positioned between the second retaining ring and the engagement surface. Hubler disclose an O-ring between 2a and 13. It would have been obvious to one having ordinary skilled in the art at the time of the invention to have the sealing device of Guggi to have an O-ring between the retaining ring and the engagement surface as taught by Hubler to provide a further fluid tight seal between members (inherent teaching of an O-ring being placed between two members).

Response to Arguments

9. Applicant's arguments filed 8/3/07 have been fully considered but they are not persuasive.

Applicants' argument that applicant has claimed to prevent movement of fluid between the shaft seal and the shaft is correct but this is the case in Hubler since a seal is provide between the shaft 1a and sealing portion 4a. Furthermore a labyrinth seal is formed between the member 4a having coating 5a and member 3a (this is the case since members are relatively rotating members).

Furthermore the reference of Hubler does read on the limitations of the claims "to prevent" meaning to be in readiness for or to hold or keep back (see Merriam-Webster's Collegiate Dictionary Tenth Edition, Page 924, which the sealing device of Hubler does.

Applicants' arguments to Hubler is not persuasive because Hubler teaches to have a coating to make a gap that is minimal to provide almost no leakage (column 3, lines 45-49).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vishal Patel whose telephone number is 571-272-7060. The examiner can normally be reached on 6:30am to 8:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jennifer H. Gay can be reached on 571-272-7029. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VP
December 3, 2007

A handwritten signature in black ink, appearing to read 'Vishal Patel', with a stylized flourish at the end.

Vishal Patel
Patent Examiner
Tech. Center 3600